Amendment After Final Rejection
Serial No. 09/846,596   PHNL 000240

REMARKS

The Office Action dated July 7, 2004 has been reviewed and carefully considered. Claim 15 has been redrafted into independent form, with a minor correction being made to put claim 15 into better form for appeal. Claims 1, 3, 5-7, 9 and 11-17 remain pending, the independent claims being 1, 7 and 15.

Claims 15 and 17 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description by failing to disclose a "first iteration" and "second iteration."

The proposed after-final amendment of claim 15 consists of redrafting claim 15 into independent form and changing "a" to "said."

The latter revision is intended to put claim 15 into better form for appeal by providing stronger antecedent basis for the term "said computer system." Although no lack of antecedent basis has been suggested in any Office Action, the current amendment requires merely cursory review and would act to remove a potential issue from appeal. MPEP 714.13(II), second paragraph.

Support for claim 15 is found in the specification (e.g., page 7, lines 25-29: "To avoid the block 22 being erased many more times . . . selecting a block whose counter has a lower value . . ."; page 6, line 25: "computer system"). As explained from page 7, line 23 to page 8, line 11, when the block 22 is determined to have an unacceptable wear level, a block 23 of lower wear level is selected. Then, after data from block 22 is off-loaded to block 24, block 22 is erased and data from the block 23 is copied to block 22. Since block 22 now has data of lower wear level, block 22 avoids "being erased many more times." When the majority of blocks, for example, have wear

7

Amendment After Final Rejection
Serial No. 09/846,596   PHNL 000240

levels that are unacceptable, i.e., their mutation counts exceed the limit value, the limit

value is raised. Looking back at block 22 which has just received new data, block 22 is

still subject to mutations, if, for example, the data in block 22 is program code and a user

of the data on block 22 wants to make a revision to the program code (page 2, lines 15-

26). This availability for mutations to block 22 exists even if the limit value has not since

changed.

   Each mutation for any given block occurs in a process that involves, for that

block, a determination, and, depending on the result of the determination, either a

mutation or a two-step process of (1) choosing and copying (2). This description of the

process is clear from originally-filed claim 1, for example. In particular, determining is a

first step. If the outcome of the determining is a particular result, then choosing and

copying are executed. However, as a general proposition, the determining may occur a

"number of times" (page 6, line 32: "number of times") before the choosing/copying are

performed. If the limit value subsequently increases by much, the determining may again

occur a "number of times" before the choosing/copying are performed. This iterative

process is implicit from the above-described references to the specification and is

inherent in the wording of claim 15.

   Claim 15 recites, "<u>determining</u> whether . . . of the first block (22). . . is

acceptable for executing the mutation, and if so, executing the mutation. . ., and <u>otherwise</u>

<u>choosing</u> . . . <u>and copying</u> . . . wherein the blocks from said variety have an associated

counter for counting the number of mutations in the block concerned, . . . so that if said

determining, said choosing <u>and</u> said copying are executed with respect to said first block .

. . <u>in a first iteration</u>, said computer system is configured to, in the event of a <u>second</u>

8

Amendment After Final Rejection
Serial No. 09/846,596   PHNL 000240

iteration with respect to said first block, again execute <u>said determining</u> even if said value

of the counter of the first block (22) exceeded said limit value in said first iteration, said

limit value not having since changed."

It would be clear to one of ordinary skill in the art that a first iteration and

a second iteration are implicit in the cited portion of the present specification.

<u>Reconsideration and withdrawal of the rejection is respectfully requested.</u>

Claims 15 and 17 stand rejected under 35 U.S.C. 112, second paragraph, as

indefinite for reciting a "first iteration" and a "second iteration."

As set forth in the previous section above, disclosure of these iterations is

implicit in the cited portion of the specification.

> The examiner's focus during examination of claims for compliance with
> the requirement for definiteness of **35 U.S.C. 112**, second paragraph is
> whether the claim meets the threshold requirements of clarity and
> precision, not whether more suitable language or modes of expression are
> available. When the examiner is satisfied that patentable subject matter is
> disclosed, and it is apparent to the examiner that the claims are directed to
> such patentable subject matter, he or she should allow claims which define
> the patentable subject matter with a <u>reasonable</u> degree of particularity and
> distinctness. Some latitude in the manner of expression and the aptness of
> terms should be permitted even though the claim language is not as precise
> as the examiner might desire. MPEP 2173.02.

In this regard, applicant submits that claim 15 is certainly worded with the

"<u>reasonable</u> degree of particularity and distinctness" mandated in MPEP 2173.02.

Accordingly, the applicant does not believe that the instant grounds for rejecting claim 15

have merit. <u>Reconsideration and withdrawal of the rejection is respectfully requested.</u>

Claims 1-3, 5-9 and 11-13 and 15-16 stand rejected under 35 USC 103(a) as

allegedly unpatentable over PCT Publication No. WO 95/10083 to Assar et al. ("Assar").

9

Amendment After Final Rejection
Serial No. 09/846,596   PHNL 000240

Responsive to item 16 of the most-recent final Office Action, dated July 7,

2004, (hereinafter "final Office Action"), the Examiner concedes a lack of disclosure in

Assar of increasing the limit value (final Office Action, item 6, page 4, first full

paragraph, first sentence), a limitation that appears in applicant's claim 1, but suggests

that increasing the limit value and not resetting counters would have been an obvious

matter of design choice in lieu of the Assar method of keeping the limit value constant

and resetting counters.

Firstly, the Examiner proposes "keeping the total counts intact" (final

Office Action, item 15, second paragraph, first sentence), i.e., not resetting the counters,

which would entail the overhead of page thrashing. The Examiners own reference,

Bruce, advises against such a modification (col. 2, lines 39(40)-42(43)).

To this date, the Examiner has not explained the basis upon which the

Examiner reaches the conclusion stated in item 16 of the final Office Action that

modifying Assar to increase the limit value would have been an obvious matter of design

choice. In particular, and referring to the second paragraph under item 16 of the final

Office Action, where the Examiner reiterates this commentary, the whole paragraph

between the first and last sentences consists of unsupported statements, with no citation

to any authority or reference. The whole unsupported commentary apparently amounts to

no more than a demonstration of impermissible hindsight offered to explain why what is

not disclosed in the one reference upon which an obviousness rejection is based is

somehow obvious.

In tacit acknowledgment of any lack of foundation to the one-reference

obviousness rejection, we are offered an additional, two-reference obviousness rejection

10

using that one reference as the primary reference. Analysis of the shortcomings of the

two-reference rejection is set forth below in the following corresponding section.

 Claim 7 recites the same above-quoted limitation regarding a limit value

being increased, and is likewise deemed to be non-obvious over Assar.

 As to the art rejection of claim 15, the January 14th Office Action is rather

silent and prefers to merely mention claim 15 in the same single, sentence that mentions

claims 1, 7 and 13. As the above discussion advises, however, the specific language of

claim 15 cannot properly be characterized as lacking patentable weight.

 The limitations specific to claim 15 further distinguish over Assar, which no

longer considers a block for mutation once the block is erased and rewritten with data of

lower wear level (Assar, page 16, lines 25-28).

 The rejection of claims 1-3, 5-9 and 11-13 and 15-16 based on Assar cannot

be maintained. <u>Reconsideration and withdrawal of the rejection is respectfully requested.</u>

 Claim 1-3, 5-9 and 11-13, 15 and 16 stand rejected under 35 U.S.C. 103(a)

as unpatentable over Assar in view of U.S. Patent No. 6,000,006 to Bruce et al.

("Bruce").

 The Bruce reference purports to improve upon the Assar methodology

(<u>compare</u> col. 2, line 21 of Bruce to page 3, lines 25-32 of Assar). Assar periodically

clears erase counters for respective blocks of memory, but does not maintain a count of

the total number of erasures for a block over the lifetime of the memory. Bruce notes that

the lack of this total number, as a result of the periodic clearing of the erase counters is

undesirable (col. 2, lines 31(32)-33(34), and leads to uneven wear of the blocks over the

long run (col. 2, lines 37-39). On the other hand, if Assar were to be modified to simply

Amendment After Final Rejection
Serial No. 09/846,596

PHNL 000240

forego the clearing of erase counters would lead to inefficient page thrashing (col. 2, lines 39(40)-42(43)). In particular, although retention of the total erase counts advantageously affords longer-term wear leveling (col. 2, lines 36(37)-38(39)), Bruce nevertheless retains a periodically-cleared erase count which Bruce terms an "incremental-write count" (abstract, next-to-last sentence). The latter count is cleared at each wear-leveling operation for the block (col. 3, lines 6-8), whereas total-write count for the block is never cleared (abstract, next-to-next-to-last sentence). In Bruce, wear-leveling is performed only (col. 3, line 9: "must") when both (col. 3, line 8: "Both"; line 31(32): "both") a total-write threshold and an incremental-write threshold are exceeded by the respective incremental-write count and total-write count. In short, Bruce is not proposing to modify Assar. Bruce proposes to replace Assar.

Notably in this regard, Bruce operates in a manner fundamentally different than Assar. Bruce does not, for example, wear-level by copying data from one block to another as in Assar. Instead, Bruce performs wear-leveling by moving entries within a unified re-mapping table (col. 3, lines 11-13).

For at least all of the above reasons, the proposed combination of prior art references would not have been obvious. The instant two-reference obviousness rejection of claims 1-3, 5-9, 11-13 and 15-17 is accordingly invalid as to any of these claims. Reconsideration and withdrawal of the rejection is respectfully requested.

The applicants further note that Bruce fails to disclose at least the copying step of claims 1 and 15, and the control means for copying of claim 7. Bruce accordingly, for at least this reason, fails to anticipate any claim of the instant application, and the Examiner has not suggested any such anticipation by Bruce.

12

Claim 14 stands rejected under 35 U.S.C. 103(a) as unpatentable over Assar in view of Bruce, or, alternatively, over Assar in view of Bruce and U.S. Patent No. 6,092,160 to Marsters.

Claim 14 depends from claim 1. Marsters is directed to block wear-leveling, but cannot make up for the deficiencies in Assar and Bruce. Accordingly, the proposed combination of references fails to render obvious the invention as recited in claim 14.

As to the remaining rejected claims, they each depend from one of the base claims and are likewise deemed to be obvious for at least the same reasons.

13

Amendment After Final Rejection
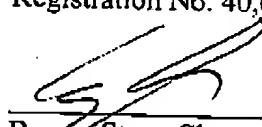Serial No. 09/846,596   PHNL 000240

For all the foregoing reasons, it is respectfully submitted that all the present

claims are patentable in view of the cited references. A Notice of Allowance is

respectfully requested.

Respectfully submitted,

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14